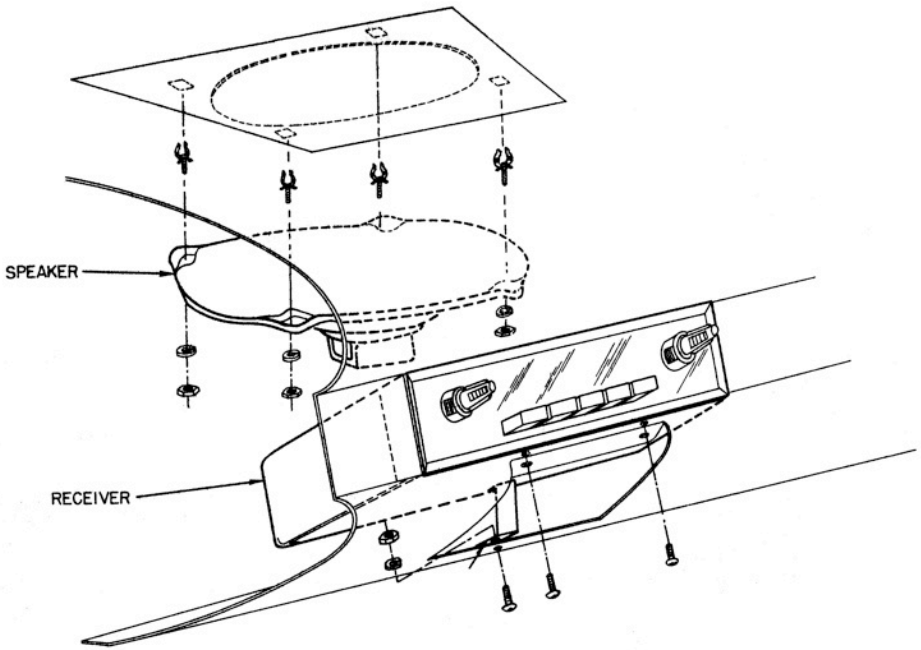
Aurora Design
BTU-1
Bluetooth/USB/MP3 Adapter



User Operation Manual

Bluetooth 3.0

USB UNIVERSAL SERIAL BUS

Congratulations on your new Aurora Design BTU-1 Bluetooth/USB/MP3 adapter. Combined with an FMR-1 converted radio, you can enjoy 21st century technology in your classic vehicle!

Setup: Before installing your radio back into your vehicle, you may wish to plug the supplied hands-free microphone or optional illuminated pushbutton into the appropriate jacks on the radio.

The microphone is only required if you want to support hands-free calls and *Voice Command*. If not, the microphone does not need to be attached. When not attached, the BTU-1 will not broadcast that it supports these functions and your phone will operate as normal. The microphone can be placed in a convenient location in the vehicle, typically along the front edge of the headliner near the rear view mirror or along the bottom edge of the dashboard. The attached cable is 9.8' (3M) long and can be routed as required, typically behind the A pillar cover for headliner mounting. Excess cable can be coiled and tied off.

The pushbutton assembly is not required when used with an FMR-1 converted radio as the existing radio controls can be used to fully control the BTU-1. The radio may or may not have a blue status LED added in the dial for BTU-1 status. The pushbutton assembly can still be used with an FMR-1 converted radio if desired, and must be used with all other installations. The pushbutton requires a 1/2" (12.7mm) hole and should be mounted somewhere convenient such as the bottom edge of the dashboard. The pushbutton is illuminated with a red status LED that should be made visible for easiest operation. The attached cable is 3.3' (1M) long and can be routed as required. Excess cable can be coiled and tied off.

Basic Operation: Operation of the BTU-1 is extremely simple yet powerful. The BTU-1, when combined with an FMR-1 AM/FM receiver form a fully integrated AM/FM/Bluetooth/USB/MP3 solution. Communication over a proprietary com-link keeps the two modules in perfect sync. No external cables, plugs or switches are required. Full operation is provided by the existing controls on the radio. When streaming music or handling a phone call, the FMR-1 status LED will change to orange (or yellow depending on how the FMR-1 is configured) to signify that an active interface is selected. When you stop streaming music or end a call, the BTU-1 will put the FMR-1 back into normal operation. Everything is handled automatically. When not combined with an FMR-1, an optional illuminated pushbutton assembly is available for the BTU-1.

Since the BTU-1 contains both Bluetooth and USB interfaces, control of the module, either through an FMR-1 or with the optional pushbutton, focuses on one interface at a time. Just as with a computer, the application that currently has focus receives the inputs from the keyboard and mouse, so do the Bluetooth and USB interfaces on the BTU-1. If only one interface is active, for example Bluetooth connected and no USB drive attached, the controls will affect the Bluetooth interface. Likewise if a

USB drive is attached and no Bluetooth device is connected, the controls will affect the USB interface. In the case where both a Bluetooth device is connected and a USB drive is attached, the one that is currently active will have focus from the controls. If neither interface is currently active, the BTU-1 will focus control on the USB interface by default. In this case to change focus to the Bluetooth device, momentarily remove the USB drive or start playback using the menus on the Bluetooth device.

The BTU-1 will always return to the last mode it was in when the radio was turned off assuming the Bluetooth or USB devices are still present. For example, if the BTU-1 was playing back from the Bluetooth or USB when the radio was powered off, it will return to playing back from where it left off when the radio is turned back on. Additionally, if a USB drive is inserted after the the radio is turned on, the BTU-1 will start playback of the USB drive unless the Bluetooth interface is currently active.

When first powering the radio on, the optional status LED will blink once to show the BTU-1 is now operational.

Bluetooth Pairing: To pair a new device, twist the volume control back and forth twice towards the direction of higher volume. (this is the same action that is used with the tone control to access the virtual fader function) or push and hold the optional pushbutton. The optional front panel status LED or the optional pushbutton LED will flash and a confirmation tone will be heard in the radio. The BTU-1 will then go into pairing mode for approximately 90 seconds or until a device is paired. While in pairing, the BTU-1 will display as Aurora Design BTU-1 in the Bluetooth section of your device. Select the BTU-1 to connect. (refer to the owners manual for your Bluetooth device for information on pairing)

Bluetooth Connecting: The BTU-1 will automatically attempt to reconnect to the last connected Bluetooth device. If this device is not within range, the BTU-1 will then attempt to reconnect to any of the recently connected devices. This is handy when the user has multiple Bluetooth devices, or several people use the radio. If any paired device is within range when the radio is powered on, the BTU-1 will reconnect and return to its last mode. The optional front panel LED or the optional pushbutton LED will illuminate to signify a Bluetooth device is connected. A confirmation tone will also be heard in the radio when a Bluetooth device successfully connects.

Bluetooth Audio Levels: The BTU-1 sends commands to the connected Bluetooth device to adjust the playback audio levels, but many devices require that the user make these settings manually. Usually the playback levels for audio streaming, phone calls and Voice Command are all stored separately so must be adjusted separately. The first time you stream audio, take a phone call, or use the Voice Command feature, use the volume buttons or volume slider menu on the device to adjust the audio

level. This only needs to be performed once on the device as these settings are permanently saved in the device.

Bluetooth *Voice Command*: The Bluetooth *Voice Command* feature allows the user to control their compatible Bluetooth device through voice commands. The *Voice Command* feature is accessible in all radio modes. It is designed to work with Apple Siri®, Google Voice® and Microsoft Cortana® and other Bluetooth voice interfaces. To initiate a Voice Command, twist the volume control back and forth twice towards the direction of higher volume. (this is the same motion that was used to open up pairing) Wait for the confirmation tone from the Bluetooth device and then speak the command. For example you can say things like “call home” or “play Bruce Springsteen”. Check with the manual for your Bluetooth device for further information on its support for voice commands.

Bluetooth/USB Streaming Audio: To start playing music from either the Bluetooth or USB interface, twist the volume control back and forth twice towards the direction of lower volume or push and hold the optional push button for about 1 second. (you can also use the menus on your Bluetooth device to control the audio) Audio will start playing from the device that has focus as explained above. To toggle between pause and play, repeat the procedure above. When the audio is paused, the FMR-1 status LED will blink slowly. If the audio is paused for more than about 10 seconds, the BTU-1 will release the FMR-1 and it will switch back to normal radio operation. If playback is started again, it will continue from where it left off.

For the USB interface, if the BTU-1 remains in pause for more than 10 minutes, when playback is resumed, the USB will start playing the last song from the beginning rather than from where it left off. Additionally to change the operating mode of the USB interface between random and sequential playback, start by placing the USB interface in pause as described above. To select random playback, twist the tuning control towards the high frequency end of the dial or quickly press the optional pushbutton once. A single beep tone will confirm the setting. To select sequential playback, twist the tuning control towards the low frequency end of the dial or quickly press the optional pushbutton twice. A double beep tone will be heard to confirm the setting. When playback is resumed, the current song will start playing over from the beginning.

To skip to the next song, twist the tuning control towards the high frequency end of the dial or quickly press the optional pushbutton once. Additionally on a signal seeking radio such as the Delco Wonderbar®, Ford Town & Country® or Chrysler ElectroTouch®, you can press the seek button. To skip to the previous song, twist the tuning control towards the low frequency end of the dial or quickly press the optional pushbutton twice. (Hint: when twisting the tuning control, twist it in the desired direction and then back to the starting point. This way the tuner always remains in the same position)

In sequential mode, to skip to the next folder, double twist the tuning control on the radio towards the high frequency end of the dial, or double press the seek bar on a signal seeking radio. To skip to the previous folder, double twist the tuning control towards the low frequency end of the dial. To reset to the first song, triple twist the tuning control towards the low frequency end of the dial.

Hands-free Phone: When a phone call comes in, the FMR-1 will mute the radio and ring through. To accept the call, twist the tuning control towards the high frequency end of the dial or quickly press the optional pushbutton once or press the seek button on signal seeking radios. To reject or end a call, twist the tuning control towards the low frequency end of the dial or quickly press the optional pushbutton twice or press the seek button again.

To place a call on hold (muted), twist the volume control back and forth twice towards the direction of lower volume or push and hold the optional push button for about 1 second. (you can also use the menus on your Bluetooth device to control the audio) A repeating confirmation tone will be heard on the radio while the call is muted. To toggle between mute and unmuted, repeat the instructions above. When the audio is muted, the FMR-1 status LED will blink slowly.

During each of the above actions, the optional front panel status LED or optional pushbutton LED will blink once to indicate that the action was accepted and sent to the Bluetooth device.

The Bluetooth device can also be controlled using its own menus. (follow manufactures instructions on controlling your device)

Due to differences in Bluetooth devices and their operating systems, the BTU-1 may not operate with all Bluetooth devices.

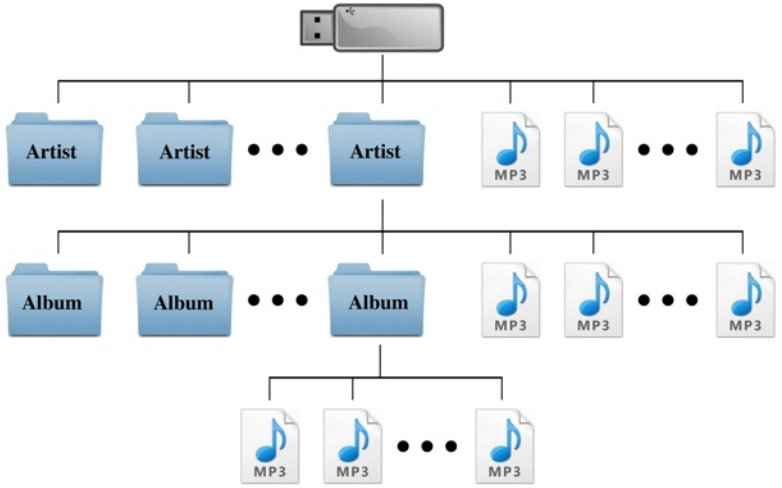
USB File Structure: The USB drive must be formatted in FAT12, FAT16 or FAT32 format. The name of the drives can be anything, so you may want to name them after the type of audio on them, i.e. Rock and Roll, Easy listening, Audio Books, etc.

Audio files must be in standard mp3 format and file names must use the .mp3 extension. Files not conforming to this specification will be ignored.

Each folder, including the root, can contain up to 250 files and an unlimited number of folders. (1750 folders and 65534 files maximum) In this manner the root folders could use the artist names with the subfolders named for each album, or the root folders could be name for music genres, etc.

Since indexing the drive takes a bit of time, the USB-1 will start playing a song while indexing. Non-audio files will slow the indexing process down and should be avoided. If the drive must be used for non-audio files, the audio files can go into a folder named ~Music~. The USB-1 will then only look in this folder, speeding up the indexing process.

The USB-1 will place two files named ~AD_USB0/1.TXT at the root level. These files are used by the USB-1 for housekeeping and should not be modified.



Suggested USB File Layout

Troubleshooting:

Poor Range: Make sure nothing is obstructing the dial face of the radio, or the openings along the bottom side of the radio chassis. Try moving your Bluetooth device to a different location.

No Sound: For Bluetooth, make sure the BTU-1 is paired and connected to your device. Also make sure the BTU-1 is selected as the audio device for streaming audio and hands-free operation on your device following the manufacturers instructions. Verify the audio levels are set properly on the Bluetooth device.

For USB, verify that the USB drive is formatted correctly and contains valid mp3 audio files using the .mp3 extension.

Long Delays: Do not place many non-audio files on the USB drive. This will slow down indexing the drive.

If the BTU-1 is set to sequential playback and you skip songs/folders while the first song is playing, it may take a while for the next song to start playing if the indexing process has not yet completed.

The drive may have a corrupted file table. Reformat the drive as FAT16 or FAT32 and recopy your files onto the drive.

US Certification:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Consult the dealer or an experienced radio/TV technician for help.

Canadian Certification:

This device complies with Industry Canada license-exempt RS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

European Certification:

The Bluetooth module used in this device complies with the essential requirements of the R&TTE 1999/EC, the EMC Directive 2004/108/EC and the low-voltage Directive 2006/95/EC.

Aurora Design LLC. does not assume any responsibility for personal injury or property damage incurred due to hazardous driving as a result of interaction with the BTU-1 or other Bluetooth devices.

BE SAFE! Never text while driving or be distracted by the radio.

Specifications:

***Bluetooth Tranceiver**:*	
Frequency Band:	2.40-2.48GHz
Standard:	Bluetooth 3.0, Class 2
Sensitivity:	-85dBm @ 0.1% BER
TX Power:	4dBm maximum
USB Interface:	
SDP:	USB 2.0 (1.0 and 1.1 compatible)
USB File System:	
Supported Formats:	FAT12, FAT16, FAT32
Maximum Root Folders:	250
Maximum Total Folders:	1750
Maximum Files/Folder:	250
Maximum Total Files:	65534
MP3 Decoder:	
Maximum Sample Rate:	48kHz MPEG1, 24kHz MPEG2 12kHz MPEG2.5
Minimum Sample Rate:	32kHz MPEG, 16kHz MPEG2 8kHz MPEG2.5
Maximum Data Rate:	320kb/s MPEG1 160kb/s MPEG2, MPEG2.5
Minimum Data Rate:	32kb/s MPEG1 8kb/s MPEG2, MPEG2.5
Environmental:	
Temperature:	-40C to 65C ambient (-40F to 150F) Operating -40C to 125C ambient (-40F to 257F) Storage
Humidity:	10% to 90% non-condensing

*Characterized by component manufacturer

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